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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,745	06/19/2001	Sreenivas Subramoney	42390P11422	5588

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BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Seventh Floor
12400 Wilshire Boulevard
Los Angeles, CA 90025-1026

EXAMINER

LE, UYEN T

ART UNIT	PAPER NUMBER
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2171

DATE MAILED: 08/01/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/885,745

Applicant(s)

SUBRAMONEY ET AL.

Examiner

Uyen T Le

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____



DETAILED ACTION

Drawings

1. The drawings are objected to because Figure 2B shows object A through P but the specification mentions A through O. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: the specification at page 7 mentions data objects A through O. However, Figure 2 of the drawings shows A through P.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention because:

- claims 1, 8, 15 last paragraph is not understood. Therefore, the limitations cannot be ascertained. Which data does applicant refers to by "the data" and does applicant intend to mean – upon copying the contents to the new memory location--?

- claims 3, 10, 17, "around the cache" is not understood. Therefore, the limitations cannot be ascertained.

The art rejection of claims 1-21 is applied as best understood in light of the rejection under 35 U.S.C. 112, second paragraph discussed above.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1, 2, 8, 9, 15, 16 are rejected under 35 U.S.C. 102(a) as being anticipated by applicant's admitted prior art (AAPA) at pages 1-3.

Regarding claim 1, the claimed method merely reads on the fact that AAPA uses a moving garbage collection algorithm (MGCA) to recover memory (see pages 1-3). The claimed "accessing a reference array...in memory" is met by the mark phase of the MGCA. The claimed "determining a new memory location...data object" is met by the repoint phase of the MGCA and the claimed "copying the contents...cache memory" is met by the copy phase of the MGCA. Clearly the data objects are not stored to a cache after the data objects are copied to the new memory location since they are deleted from cache in AAPA when not needed.

Regarding claim 2, AAPA copies contents of consecutively referenced data objects to consecutive memory locations (see pages 1-3).

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Claims 8, 9 and 15, 16 correspond respectively to a computer program product and system for the method of claims 1, 2, thus are rejected for the same reasons stated in claims 1, 2 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-7, 10-14, 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) at pages 1-3, in view of Pentkovski et al (US 6,356,270).

Regarding claim 3, although AAPA does not show a write combine operation, it is well known in the art to use such an operation for efficient utilization of buffers for a sequence of non-temporal stores to scattered locations (see the abstract). Therefore, it would have been obvious to one of ordinary skill in the art to include the claimed feature while implementing the method of AAPA in order to utilize buffers efficiently as taught by Pentkovski.

Claim 4 merely reads on the fact that any central processing units has specific capability. Therefore, the amount of data copied has to depend upon the central processing unit parameters as claimed.

Claim 5 is met by the fact that the MGCA of AAPA is dynamic.

Regarding claim 6, AAPA discloses Java and CLI run-time environment (see page 1).

Regarding claim 7, clearly the method of claim 6 is implemented as the copy phase of the MGCA of AAPA since the computing system of AAPA uses MGCA to collect garbage.

Claims 10-14 and 17-21 correspond respectively to a computer program product and system for the method of claims 3-7, thus are rejected for the same reasons stated in claims 3-7 above.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Benson et al (US 6,421,689) teaches garbage collection using from-space and to-space copy operation.

Hill et al (US 6,334,171) teach write-combining device for uncacheable stores.

Schloss et al (US 6,249,844) teach caching object fragments in a web environment.

Holt, "Long-range dependency and self-similarity in World Wide Web proxy cache references", IEE 2000, pages 317-321.

Kordale et al, "Distributed/concurrent garbage collection in distributed shared memory systems", IEEE 1993, pages 51-60.

Rodriguez-Rivera et al, "A non-fragmenting, non-moving garbage collector", ACM 1998, pages 79-85.

Baker et al "Non-volatile memory for fast reliable file systems", ACM 1992, pages 10-22.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Uyen T Le whose telephone number is 703-305-4134. The examiner can normally be reached on M-F 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Safet Metjahic can be reached on 703-308-1436. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.



Uyen Le
July 19, 2003